

Appln. Serial No. 10/086,023
Amendment dated April 18, 2007
Reply to Office Action Mailed February 23, 2007

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AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

- 1 1. (Previously Presented) A system for use in a wellbore, comprising:
2 a plurality of wireless network devices in the wellbore, the plurality of wireless network
3 devices in the wellbore to communicate wirelessly using a protocol that defines
4 short-range wireless communication.
- 1 2. (Previously Presented) A system for use in a well, comprising:
2 a plurality of wireless network devices in the well, the plurality of wireless network
3 devices to communicate wirelessly using a Bluetooth wireless communication
4 protocol.
- 1 3. (Original) The system of claim 1, further comprising:
2 an interlink wireless network device positioned proximal the surface of the well;
3 a communication line interconnecting the interlink wireless network device to a surface
4 controller.
- 1 4. (Previously Presented) The system of claim 1, further comprising:
2 at least one of the wireless network devices communicating with a downhole device.
- 1 5. (Previously Presented) The system of claim 4, wherein the downhole device is selected
2 from gauges, sensors, valves, sampling devices, a device used in intelligent or smart well
3 completion, temperature sensors, pressure sensors, flow-control devices, flow rate
4 measurement devices, oil/water/gas ratio measurement devices, scale detectors, actuators,
5 locks, release mechanisms, equipment sensors, vibration sensors, sand detection sensors,
6 water detection sensors, data recorders, viscosity sensors, density sensors, bubble point
7 sensors, composition sensors, resistivity array devices and sensors, acoustic devices and
8 sensors, other telemetry devices, near infrared sensors, gamma ray detectors, H₂S
9 detectors, CO₂ detectors, downhole memory units, downhole controllers, perforating
10 devices, shape charges, firing heads, and locators.

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- 1 6. (Previously Presented) The system of claim 1, further comprising:
2 at least one of the wireless network devices in communication with a power source.
- 1 7. (Original) The system of claim 6, wherein the power source is selected from a battery, a
2 fuel cell, a downhole power generator, and a communication line extending to a surface
3 of the well.
- 1 8. (Previously Presented) The system of claim 2, further comprising:
2 at least one of the wireless network devices positioned in a lateral branch of a multilateral
3 well.
- 1 9. (Previously Presented) The system of claim 2, wherein:
2 a first of the wireless network devices is positioned in a lateral branch of a multilateral
3 well;
4 a second of the wireless network devices is positioned outside the lateral branch in
5 another portion of the well;
6 the first wireless network device and second wireless network device positioned within
7 range of one another.
- 1 10. (Previously Presented) The system of claim 2, further comprising:
2 a wireless network device in a wellhead of the well to communicate wirelessly with at
3 least one of the wireless network devices in the well using the Bluetooth wireless
4 communication protocol.
- 1 11. (Previously Presented) The system of claim 10, further comprising:
2 a wireless network device outside the well adapted to communicate wirelessly with at
3 least one of the wireless network devices in the wellhead.
- 1 12. – 13. (Cancelled)

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- 1 14. (Previously Presented) The system of claim 1, further comprising:
2 a wireless network device outside the wellbore adapted to communicate wirelessly with
3 at least one of the wireless network devices in the wellbore using the protocol.
- 1 15. (Cancelled)
- 1 16. (Previously Presented) The system of claim 2, further comprising at least one secondary
2 communication system in communication with the at least one of the wireless network
3 devices.
- 1 17. (Original) The system of claim 16, wherein the secondary communication system is
2 selected from communication line, a fiber optic line, an Internet, a satellite, a telephone
3 system, and an intranet.
- 1 18. (Original) The system of claim 16, wherein the at least one secondary communication
2 system provides communication between the at least one wireless network device and a
3 location selected from a remote land-based location and an offshore surface location.
- 1 19. (Previously Presented) The system of claim 2, wherein:
2 a first one of the wireless network devices is positioned outside a casing in the well;
3 a second one of the wireless network devices is positioned inside the casing of the well;
4 the first wireless network device and the second wireless network device adapted to
5 communicate wirelessly with one another.
- 1 20. (Original) The system of claim 19, further comprising:
2 a memory device communicating with the first wireless network device.
- 1 21. (Original) The system of claim 19, wherein:
2 the second wireless network device is mounted in the well.

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1 22. (Original) The system of claim 19, further comprising:
2 the second wireless network device is provided on a running tool.

1 23. (Previously Presented) The system of claim 1, wherein:
2 a first of the wireless network devices is positioned outside a tubing in the wellbore;
3 a second of the wireless network devices is positioned inside the tubing of the wellbore;
4 the first wireless network device and the second wireless network device adapted to
5 communicate wirelessly with one another.

1 24. (Original) The system of claim 23, further comprising:
2 a memory device communicating with the first wireless network device.

1 25. – 27. (Cancelled)

1 28. (Previously Presented) The system of claim 23, further comprising:
2 at least a portion of the tubing extends through a casing in the wellbore;
3 a third of the wireless network devices positioned inside the casing of the wellbore;
4 the first wireless network device, the second wireless network device, and the third
5 wireless network device are adapted to communicate wirelessly with one another.

1 29. (Original) The system of claim 28, wherein:
2 the first wireless network device relays information between the second wireless network
3 device and the third wireless network device.

1 30. – 32. (Cancelled)

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1 33. (Previously Presented) A system comprising:
2 a tool having a first wireless network device, the tool movable in the well;
3 at least a second wireless network device in the well located at a predetermined position
4 therein;
5 a depth correlation circuitry in the tool in communication with the first wireless network
6 device in the tool to detect a signal from the first wireless network device for
7 determining the depth of the tool in the well, the signal from the first wireless
8 network device based on wireless communication between the first and second
9 wireless network devices; and
10 a third wireless network device in the well;
11 wherein the signal is based on triangulation among the first, second, and third wireless
12 network devices.

1 34. – 39. (Cancelled)

1 40. (Previously Presented) A method for use in a well, comprising:
2 providing a plurality of wireless network devices in the well; and
3 the plurality of wireless network devices communicating wirelessly using a Bluetooth
4 wireless communication protocol.

1 41. – 42. (Cancelled)

1 43. (Previously Presented) The method of claim 40, further comprising:
2 telemetering data in a multilateral well using the wireless network devices.

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1 44. (Currently Amended) ~~The method of claim 39, further comprising:~~ A method for use in a
2 wellbore, comprising:
3 providing plural wireless network devices in the wellbore;
4 the plural wireless network devices communicating wirelessly using a protocol that
5 defines short-range wireless communication; and
6 telemetering data from the wellbore to a position outside the wellbore using at least one
7 of the wireless network devices.

1 45. (Previously Presented) The method of claim 40, further comprising:
2 telemetering data from through a casing using at least one of the wireless network
3 devices.

1 46. (Previously Presented) The method of claim 40, further comprising:
2 telemetering data from through a tubing using at least one of the wireless network
3 devices.

1 47. (Previously Presented) The method of claim 40, further comprising:
2 storing information downhole;
3 transferring the stored information to a running tool via at least one of the wireless
4 network devices.

1 48. (Previously Presented) The method of claim 47, further comprising:
2 determining the depth of a tool in the well using at least one of the wireless network
3 devices.

1 49. (Previously Presented) The method of claim 40, further comprising:
2 actuating a tool in the well using at least one of the wireless network devices.

1 50. (Cancelled)

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1 51. (Previously Presented) A system for use in a wellbore, comprising:
2 a first device positioned in the wellbore;
3 a second device remotely located with respect to the first device;
4 means for transferring data between the first device and the second device using short-
5 range wireless communication operating without the need for a central network.

1 52. – 55. (Cancelled)

1 56. (Previously Presented) A subsea telemetry system, comprising:
2 a wireless network device positioned proximal the sea floor;
3 a subsea vehicle having a wireless network device therein that is adapted to communicate
4 with the wireless network device positioned proximal the sea floor; and
5 a guidance circuitry of the subsea vehicle in communication with the wireless network
6 device of the subsea vehicle, the guidance circuitry adapted to determine the
7 relative position of the subsea vehicle based upon input from the interconnected
8 wireless network device.

1 57. (Cancelled)

1 58. (Previously Presented) A system for use in a well, comprising:
2 a tool containing a first wireless network device, the tool movable in the well during a
3 downhole operation;
4 a second wireless network device for location in the well,
5 wherein the first wireless network device is outside a wireless communication range of
6 the second wireless network device until the tool is moved into proximity of the
7 second wireless network device,
8 the second wireless network device to transmit a location code to the first wireless
9 network device.

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- 1 59. (Previously Presented) The system of claim 61, wherein the tool includes a depth
2 correlation device to correlate a position of the tool based on wireless communication
3 between the first and second wireless network devices.
- 1 60. (Previously Presented) A system for use in a well, comprising:
2 a tool containing a first wireless network device, the tool movable in the well during a
3 downhole operation;
4 a second wireless network device for location in the well,
5 wherein the first wireless network device is outside a wireless communication range of
6 the second wireless network device until the tool is moved into proximity of the
7 second wireless network device; and
8 at least another wireless network device for location in the well, the first wireless network
9 device to perform triangulation of signals to determine relative position of the tool
10 to the second wireless network device and the at least another wireless network
11 device.
- 1 61. (Previously Presented) A system for use in a well, comprising:
2 a tool containing a first wireless network device, the tool movable in the well during a
3 downhole operation;
4 a second wireless network device for location in the well,
5 wherein the first wireless network device is outside a wireless communication range of
6 the second wireless network device until the tool is moved into proximity of the
7 second wireless network device,
8 the second wireless network device to send an actuating signal to the first wireless
9 network device for actuating the tool once the tool comes within range of the
10 second wireless network device.
- 1 62. (Previously Presented) The system of claim 61, wherein the tool comprises a perforating
2 gun, and the actuating signal comprises a firing signal to fire the perforating gun.

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- 1 63. (Previously Presented) The system of claim 61, wherein the tool comprises a valve
2 actuated by the actuating signal.
- 1 64. (Previously Presented) The system of claim 61, wherein the tool comprises a release
2 mechanism that releases sensors from the tool in response to the actuation signal.
- 1 65. (Previously Presented) The system of claim 61, wherein the tool comprises a sampler to
2 take a sample in response to the actuating signal.
- 1 66. (Previously Presented) The system of claim 61, wherein the tool comprises a recorder
2 that starts recording in response to the actuating signal.
- 1 67. (Previously Presented) The system of claim 1, wherein the protocol comprises a
2 Bluetooth protocol.
- 1 68. (Currently Amended) ~~The method of claim 39,~~ A method for use in a wellbore,
2 comprising:
3 providing plural wireless network devices in the wellbore; and
4 the plural wireless network devices communicating wirelessly using a protocol that
5 defines short-range wireless communication,
6 wherein communicating wirelessly using the protocol comprises communicating
7 wirelessly using a Bluetooth protocol.
- 1 69. (Previously Presented) The system of claim 51, wherein the short-range wireless
2 communication is according to a Bluetooth protocol.